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OFFICE OF
RESEARCH AND DEVELOPMENT

SUBJECT: 1981 Hawaii Epidemiology Study, July 1983 (Effects Of Chemical Preservatives on the Health of Wood Treating Workers in Hawaii, 1981)

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TO: CAG Dioxin File

This epidemiological study is in two parts: (1) a cohort-comparison study and (2) a historical prospective study. The cohort-comparison study was a comprehensive health evaluation of 88 woodtreaters and 61 matched controls. Altogether, of the 182 workers identified since 1960, 88 "qualified and agreed to participate" in the study. Of this group, sixty-six were actively employed in the occupation while 22 were former woodtreaters. Length of employment extended from 4 to 316 months. The median employment was 80.5 months. Included in the comparison group of 61 were 14 carpenters, 13 of which were exposed to either pentachlorophenol, chromated copper-arsenate (CCA) or tributyl tin oxide (TBT). In terms of assessing a significant cancer risk in this group, the cross-sectional study design is not a suitable vehicle for the detection of a cancer risk and the small size of the study group makes the detection of rare forms of cancer unlikely. Only 3 cancers were noted altogether in the 182 woodtreaters, 2 colorectal, and 1 urinary bladder cancer, but they are not compared with any controls. The victims are not reported to be deceased and these cancer types are not considered rare. Soft tissue sarcomas (STS) and non-Hodgkin's lymphomas known to be associated with dioxin-contaminated herbicides and preservatives are relatively rare cancers in the general population. Even among persons known to suffer adverse health effects from exposure to such substances, one STS would be considered a significant finding. The fact that none have been identified in this population, does not preclude the possibility that they might not show up at a later time following a suitable latent period if kept under observation. In short, the findings, cannot be construed to support a negative finding of a cancer effect in any case.

The results of the historical prospective study are even less supportive of either a negative or positive finding of cancer. Of the 182 woodtreaters identified above, only 125 could be followed over the 21 years from 1960 until

1981 to determine vital status. The authors decided not to consider the remaining 57 because of missing records. Of the 125, only 6 deaths occurred. Five were cardiovascular deaths while no cause could be found for the remaining death. The authors calculated that 8 expected deaths should occur to this group based on a 1969-71 life table for all Hawaii males. No cancer deaths occurred but the authors calculated 3 expected deaths. Assuming that a 15-year latent period exists for STS and non-Hodgkin's lymphomas following exposure to dioxin-containing pentachlorophenol (although dioxin per se is not mentioned in this report), it is extremely unlikely that any cancers of the type mentioned above would have appeared by the end of 1981 from exposure to dioxin. Furthermore, many of the 125 members of the mortality cohort probably had a minimum lapse time since initial exposure that did not exceed 15 years. Considerable overlapping occurred among the two groups of this study so that many if not most were currently working as woodtreaters.

In short, this epidemiologic study may be deemed inadequate in assessing the presence (or absence) of a cancer risk in wood treaters exposed to pentachlorophenols. Health effects, other than cancer, are not addressed in this memorandum.